DOCUMENT RESUME

ED 149 180 08 CE 014 689

AUTHOR Seaman, Donald F.
TITLE Adult Education Teaching Techniques. Information Series No. 110.
INSTITUTION Ohio State Univ., Columbus. ERIC Clearinghouse on Career Education.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 77
CONTRACT 400-76-0122
NOTE 55p.
AVAILABLE FROM National Center for Research in Vocational Education Publications, Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210 (IN 110, $3.80, quantity and series discounts available)

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS *Adult Education; Adult Educators; Educational Needs; *Educational Research; Educational Strategies; Educational Technology; *Instructional Materials; Instructional Media; *Literature Reviews; Mass Media; Multimedia Instruction; Program Effectiveness; Research Needs; State of the Art Reviews; *Teaching Methods; *Teaching Techniques

ABSTRACT

Review and synthesis of research on effective techniques for teaching adults at different educational and occupational levels is presented in this information analysis paper intended for local adult continuing education directors and teachers of adults in education, industry, and government. The operational framework of the review is based on Verner's classifications and definitions of the terms adult education, method, technique, and device. Activities regarded as techniques by the literature in adult education are presented and discussed in alphabetical order. Where appropriate, devices are included in the discussion. Teaching techniques reviewed are the following: brainstorming, case study, correspondence study, critical incident, demonstration, exhibit, field trip forum, group discussion, independent study, individualized instruction, lecture, microteaching, newsletters, panel, programmed instruction, role playing, self-instructional modules, simulation, skit, symposium, telelecture, and tutorial. Certain media with a unique nature of special impact potential are discussed in the section on influence of media (multimedia and mass media). Conclusions are made based on data presented in the review section. The section on research priorities for the future contains suggestions regarding the development of a research base for identifying, selecting, and applying adult education teaching techniques. (TA)

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ED149180

Information Series No. 110

ADULT EDUCATION TEACHING TECHNIQUES

written by

Donald F. Seaman

Texas A. & M. University

The ERIC Clearinghouse on Career Education
The Center for Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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1977

CE 014 689

This publication was developed under Contract Number NIE-C-400-76-0122 with funds provided by the National Institute of Education, Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, however, necessarily represent official views or opinions of the National Institute of Education.

FOREWORD

The Educational Resources Information Center on Career Education (ERIC/CE) is one of sixteen clearinghouses in a nationwide information system that is funded by the National Institute of Education. The scope of work for ERIC/CE includes the fields of adult-continuing, career, and vocational-technical education. One of the functions of the Clearinghouse is to interpret the literature that is related to each of these fields. This paper on adult education teaching techniques should be of particular interest to local adult continuing education directors and teachers of adults in education, business and industry.

The profession is indebted to Donald F. Seaman, Texas A. & M. University, for his scholarship in the preparation of this paper. Recognition is also due Robert Arceneaux, Lafayette Parish School Board, and William Ashley, The Ohio State University, for their critical review of the manuscript prior to its final revision and publication. Allen B. Moore, Adult Education Specialist at the ERIC Clearinghouse on Career Education, supervised the publication's development. Madelon Plaisted and Jo-Ann Cherry coordinated the production of the paper for publication.

Robert E. Taylor
Executive Director
The Center for Vocational Education

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Review and synthesis of research on effective techniques for teaching adults at different educational and occupational levels is presented in this information analysis paper intended for local adult continuing education directors and teachers of adults in education, industry, and government. The operational framework of the review is based on Verner's classifications and definitions of the terms adult education, method, technique, and device. Activities regarded as techniques by the literature in adult education are presented and discussed in alphabetical order. Where appropriate, devices are included in the discussion. Teaching techniques reviewed are the following: Brainstorming, case study, correspondence study, critical incident, demonstration, exhibit, field trip forum, group discussion, independent study, individualized instruction, lecture, microteaching, newsletters, panel, programmed instruction, role playing, self-instructional modules, simulation, skit, symposium, telelecture, and tutorial. Certain media with a unique nature of special impact potential are discussed in the section on influence of media (multimedia and mass media). Conclusions are made based on data presented in the review section. The section on research priorities for the future contains suggestions regarding the development of a research base for identifying, selecting, and applying adult education teaching techniques. (TA)

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INTRODUCTION

> Give me a fish and I eat for a day. Teach me to fish and I eat for a lifetime.
>
> Babylonian Talmud

The above quote, often used in adult education, is relevant to society today, in spite of its ancient origin. The rapid growth of knowledge, increasing technology, and the constancy of change have created a situation where "cradle-to-the-grave" learning has become mandatory for every individual. In the past several years, much attention has been given to adult literacy, adult basic education, and high school equivalency programs throughout the United States and many foreign countries. The rationale given for this emphasis has been the attempt to "eliminate illiteracy in our time." However, the inability to read and write at a given level is no longer adequate to define illiteracy. To paraphrase Toffler (1970), tomorrow's illiterate will not be the person who can't read, but the person who has not learned how to learn.

Learning how to learn, regardless of its importance, is not a simple task, nor always an appealing one. Many adults have found the transition from learning "content" to learning "procedures" somewhat difficult, although once they master this new approach to learning, they seem to enjoy it more. However, the rapidly emerging field of adult education still faces many problems. For example, there are indications that over fifty million adults in 1974 participated in some form of organized educational activity (Morgan, Holmes, and Bundy, 1976). It is likely that this number will contine to rise, creating even greater demands for quality education, which depends on effective instructional techniques. Just what are good instructional techniques? Which are most effective, if indeed that can be determined? This paper is an attempt to answer these and other related questions.

It is hoped that a review of the research and literature on techniques for teaching adults will provide useful data, not only for those individuals engaged in teaching but also for those primarily engaged in planning, development, and research activities. The knowledge of effective teaching techniques should be useful to practitioners in a variety of learning situations. Most important, it is hoped that this review will assist adult educators to avoid the situation described by Rubin (1973), noting:

> . . .great defects in the present climate of learning. Drudgery is taken for granted, boredom is viewed as a necessary evil, our methods of motivating the learner are counterfeit, spontaneity has become something of a lost cause, and knowledge itself is packaged in a grossly unappetizing form. (p. 29)

STATEMENT OF THE PROBLEM

> Few people need reminded that the education scene in America has been changing rapidly during the past decade. Of the many trends, two have related especially to the older population--the expanding awareness among adults of the value of and necessity for learning throughout their lifetimes, and the realization that it is not necessary for learning to occur in the classroom, but that it can occur in a variety of "nontraditional" settings (Carp, 1973 p. 1).

As the number of adults participating in educational activities has increased, particularly in the last ten to fifteen years, educators, soon noticed that adults have different characteristics and motivations than pre-adults. Although numerous publications have described many unique characteristics of the adult learner, the following characteristics seem to be most important:

1. A wide range of ages, spanning decades, may be present in one group of learners.

2. The adult enters into the learning environment with a definite, important purpose.

3. The adult's learning needs are immediate--the concept of "delayed gratification" usually has no relevance.

4. An adult is often faced with the task of "unlearning" previously learned material which, at one time, may have been very important and meaningful--for example, the U.S. standards of weights and measures vs. the metric system.

5. The pressures of living--for example, family, work, health, pride, etc.--often provide formidable barriers and obstacles which discourage participation in learning activities.

In addition, the reasons why adults become involved in learning are numerous and varied. In *Helping Adults Learn* (1974) Allen Knox cites the following reasons (p. 18):

1. To achieve a personal occupational goal (new job, job improvement).

2. To achieve another type of personal goal (gain attention, prestige).

3. To reach a social goal (help children with studies).

4. To reach a religious goal (understand doctrine).

5. To understand (satisfy curiosity).

6. To participate in a social activity.

7. To pursue personal fulfillment.

8. To meet formal requirements (examination, certification).

9. To escape (troubled household).

Adult educators must understand both the characteristics and motivations of adult learners in order to select teaching techniques that suit the learner's needs.

CONCEPTUAL FRAMEWORK AND DEFINITIONS

If any professional field has ever been plagued by developmental confusion, it is adult education. Recognized leaders often disagree about the major concepts and ideas important in the field, and two national associations compete to "speak" for the profession. This confusion is confounded by a growing army of "instant" adult

educators, who have had neither professional training nor experience in the field, but who, as a result of participating in a workshop or perhaps one graduate course, or because they have provided leadership to some adults in a learning activity, now suddenly emerge as experts with most, if not all, the answers.

The area of "teaching" in adult education is no exception. The major publications that relate to teaching adults offer little if any remedy or solution to this problem. For example, Bergevin, Morris, and Smith (1963, p. 4) described teaching in terms of "procedures" and "patterns"; Miller (1964, p. 85) emphasized "teaching styles"; Morgan et al. (1976, p. 65) interrelated methods and types of meetings, whereas Carpenter (1967, p. 3) did not even bother to differentiate between methods and techniques. Verner (1962, p. 9) included all teaching activities under the term "processes," but he did develop a conceptual scheme for classifying those processes and later refined this scheme in a publication by the Adult Education Association of the U.S.A. (Verner, 1964, p. 6). For the purpose of this review, Verner's classification and definitions have been selected primarily because they include many common properties reflected in other adult education publications and provide a logical order by which new concepts or ideas might be derived or "synthesized." The definitions used to establish the basic operational framework for this review are presented below (Verner, 1962, p. 9; 1964, p. 37).

1. *Adult Education.* "Adult education, then, includes any educational activity for adults through which opportunities for systematic learning are provided under the supervision of an educational agent." Thus, the learning which would occur would be purposeful, guided learning and not random learning which may occur through reading a newspaper or from watching television.

2. *Method.* "Method may be defined as the relationship established by the institution with a potential body of participants for the purpose of systematically diffusing knowledge among a prescribed but not necessarily fully identified public." Method, then, refers to the type of meeting, or environmental situation, in which the learners will be organized, particularly if their numbers are large.

3. *Technique.* "Techniques are identified with respect to their utility in facilitating learning. . . The selection of techniques is a matter of concern to the individual agent (adult educator) who is managing the specific educational program and is therefore an operational rather than an administrative decision." It is through the specifically selected techniques

that the adult learner is actively involved in the learning process and, hopefully, stimulated to continue learning through future endeavors.

4. *Device*. "Various mechanical instruments, audiovisual aids, physical arrangements, and materials are used by adult educators to augment the (techniques) employed. . . They are designated as *devices* to differentiate them from other educational processes." In other words, although these mechanical devices may greatly enhance the effectiveness of a technique, they cannot function independently on their own.

The most difficult aspect of this review was ascertaining the relationship between techniques and devices. In some cases, devices such as projectors, charts, and chalkboards are used to augment the technique which the adult educator has selected. However, the classification of those phenomena called *media*, such as radio or television, is not so easy. Some would argue that, indeed, television can function independently, so long as someone is around to change the tapes. Therefore, for this paper, following the definitions as previously set forth, the following approach has been used:

1. Those activities generally regarded as "techniques" by the literature in adult education have been presented and discussed in alphabetical order. When deemed appropriate, devices have been included in the discussions of various techniques.

2. Because of their unique nature or special impact potential, certain media have been given a limited amount of special attention. It was felt that the presentation of those data would enhance this paper and would also allow the reader to acquire knowledge that might otherwise be omitted or which would remain unknown. Any information which may enable the reader to become a better adult educator through further knowledge about teaching techniques was considered appropriate in this research and literature review. The data have been included in the section "Influence of Media."

TEACHING TECHNIQUES

> Teaching may be compared to selling commodities. No one can sell unless someone buys. We should ridicule a merchant who said that he has sold a great many goods although no one has bought any. But perhaps there are teachers who think they have done a good day's teaching irrespective of what pupils have learned (Miller, 1964, p. 85).

In the minds of many people, teaching has not occurred unless the student has learned. Therefore, the techniques presented in this paper have been discussed, for the most part, in terms of how they might affect a change in one's thinking, feeling, or behaving that could be attributed to one's having learned. For some techniques discussed in the literature related to teaching adults (for example Bergevin et al., 1963; Miller, 1964; Morgan et al., 1976) there are no *research* studies available concerning the evaluation of the techniques themselves. Since omitting them from this chapter might give the reader the impression that I did not consider them techniques, they have been included with a synopsis of the discussion about them found in the available literature.

BRAINSTORMING

Although *brainstorming* is the most commonly used term, this technique is also referred to as *idea inventory*, *ideation*, and *imagineering* (Morgan et al., 1976, p. 139; Bergevin, 1963, p. 195). Brainstorming is used primarily when a spontaneous and "free-wheeling" outpuring of ideas related to an area of interest or need is desired. Participants, alone or in small groups, are encouraged to employ creative initiative and thinking in voicing their ideas. No response, regardless of how useless or impractical it seems, is omitted from the original list which is derived from this technique. Brainstorming can be used to foster creativity, to elicit participation from persons who are usually afraid to express their ideas, and to improve individuals' ability to make original responses to stimuli (Miller, 1964).

Wolf and Wolf (1976, p. 207) also found brainstorming effective to identify the needs, expectations, and concerns of participants in a preretirement seminar. "It provided a thorough but efficient means of eliciting needed information from the group." Morgan et al., (1976) have found that business and industry have built up long lists

of creative ideas while improving communication and morale among employees by developing brainstormers within the organization.

In spite of its popularity and usefulness, the reader is also cautioned that brainstorming is time-consuming, and its productivity is somewhat limited to the abilities of the participants (Morgan et al., 1976). In addition, it is not known whether more original ideas are produced in groups or by individuals using this technique (Miller, 1964).

CASE STUDY

The case study, or case history, has been implemented with more variety and experimentation than most teaching techniques. It is a presentation, either written or taped, which describes an event or situation which is to be analyzed for various purposes, such as problem-solving, presenting issues, or interpreting behavior. Sparks (1976) indicates that this technique can be used effectively to resolve conflict in actual or fictitious situations when the case study is the focal point of discussion. Carter (1974) also cites examples of the use of case studies for studying problems during in-service training of county personnel in the Cooperative Extension Service and emphasizes that the learning acquired can still be recalled months after the training occurred. To insure that pertinent data for solving problems will be provided in the case study, Schiello (1975) has developed a list of twenty independent--but, hopefully, all-inclusive--questions to be guideposts for gathering data for analysis through this technique. In the initial use of these questions, Schiello found the group worked more cooperatively toward solving problems and developed decision-making skills much faster than when questions are not used.

Miller (1964) states that, in general, case studies are also used for applying principles and clarifying values. In this area, Miller and Holden (1975) employed case studies in a career improvement program to enable participants to improve their self-images, attitudes toward work, and confidence in job-seeking. Fitzhugh (1974) used the case study technique in designing a new orientation program for hospital staff and found it to be more effective than the traditional subject-centered approach.

One of the more important uses of the case study technique appears to be in testing an individual's ability to apply learned knowledge and principles to actual problems. For example, Lacy and Smith (1976) used the case study technique to analyze a program which had previously

failed, but which, after necessary corrections and adjustments were made, became a successful endeavor. Golde (1973), in a somewhat different approach, used video tapes to present case situations in the belief that this would enable participants to apply concepts to their own situations more effectively than if written cases were analyzed. He found that using "real-life people" (not actors) who speak the language of the audience and who sometimes make mistakes motivates participants in training programs to better concentrate on the content of the tapes. Participants also develop the flexibility to handle unplanned occurrences. Moore (1967) compared the techniques of case study and simulation gaming as learning tools for adults in several situations; although the test results showed no significant differences overall, they did indicate that some aspects of learning, particularly key concepts and issues, are better achieved through case studies. In addition, Sharp (1972) showed that the case study technique could be used successfully in preparing counselors for adult education programs.

Although the case study technique has been proven to be useful in a variety of adult learning situations, Stenzel and Feency (1970, p. 10) add these cautions:

1. It puts great responsibility on the skill of the leader.

2. It may frustrate the learner seeking the "right" answer.

3. Timid persons may not participate to any great extent and may even become dependent on the leader.

However, Stenzel and Feeney believe that the case study is one of the best techniques for involving learners directly and maintaining their interest.

CORRESPONDENCE STUDY

It is doubtful that any other technique has drawn so much controversy as correspondence study. Through this technique, the adult learner receives carefully developed special materials through the mail. The lessons, usually sequential and in an organized syllabus, are likely to have been more carefully planned than those offered in classrooms (Miller, 1964). Correspondence study is essentially a "big business" and involves an extremely large number of adults in a wide variety of programs. Miller (1964) estimates that several million people

are reached each year by correspondence study. Some authors indicate that this technique should be a part of individualized instruction, while others associate it with programmed instruction. However, in this paper, it is treated as a separate and important method in the teaching process.

The literature seems to support the following advantages of correspondence study (Miller, 1964, p. 222):

1. The student can proceed at an individual rate.

2. The student can get individual attention for personal difficulties.

3. Materials are usually carefully developed and well organized.

4. The teaching has been more carefully thought through than in most other cases.

The flexibility of this technique was illustrated in a study by Brenden (1975), who sought to determine if correspondence study was a viable approach for offering vocational education courses to residents in Wisconsin. As a result of his investigation, Brenden concluded that selected courses could be offered effectively, and four models were developed for that purpose.

Another aspect of the flexibility inherent in correspondence study has been the trend to add educational devices and software to traditional written lessons. Besides audiovisual aids and teaching machines, radio and television are now used in correspondence study with or without study materials (Cros, 1968). For example, Wilson (1976) found that taped lectures helped students overcome boredom with traditional written lessons and provided a stimulating and rewarding learning experience. More importantly, Sellman (1970) discovered that the addition of an audio tape recording and illustrations produced significantly increased learning scores over written lessons alone in a career development course. Another related study by DeMuth, Kirk, and Weinswig (1976) showed that, by using cassette tapes plus one-page printed supplements with charts and related information in correspondence courses, significant increases in knowledge were obtained by pharmacists who were engaged in continuing education.

The most negative aspect of correspondence study is rate of course completion. Pheiffer and Sabers (1970) found that from 13 percent to 32 percent of correspondence study students did not even submit

the first lesson after enrolling; however, if the first lesson were submitted, there was a 70 percent to 85 percent chance that the student would complete the course. Another study indicated that the major reasons veterans failed to complete correspondence courses were insufficient time, loss of interest, courses were not what was expected, and many courses were too difficult (*Most Veterans*, 1972). Other shortcomings sometimes mentioned include lack of contact with instructors and other students and limitations on the number of credits a student could earn (*Correspondence Study*, 1970). In addition, Hughes (1973) determined that necessity for meeting a deadline, prior college experience, and prior correspondence study experience all had a statistically significant effect on completion rates.

CRITICAL INCIDENT

Often used in supervisory training, the critical incident technique involves the identification and analysis of occurrences which have some kind of effect or influence (usually negative) on adults in an organizational setting. "A critical incident. . .from the point of view of learning, has as an outcome a changed cognition or behavior" (Couch and Strouther, 1971, pp. 6-11). Although all kinds of experiences may involve learning, some involve particularly strong reinforcement (positive or negative) and appear to be much more significant to the individual than other experiences. As a result of using the critical incident technique, Couch and Strouther (1971) conclude that it not only permits an analysis of a much larger sample of experiences than usually possible, but it also has the advantage of greater freedom from the investigator's influence than do other techniques.

DEMONSTRATION

Demonstrations are usually classified into two types--result and method. The result demonstration shows the results of some activity, practice, or procedure through the evidence of something which can be seen, heard, or felt, whereas the method demonstration illustrates how to do something in a step-by-step procedure (Morgan et al., 1976).

Probably no other organization uses the demonstration technique more often than the Cooperative Extension Service. Most Extension personnel are well schooled in the importance of this teaching technique, from method demonstrations with 4-H and home demonstration club members

to result demonstrations with farmers and other agricultural producers.

> The demonstration. . .has been used successfully for many years by. . .job trainers in industry, by teachers of the various trades, and by many other instructors in situations where education-hungry adults wanted to master a new skill or ability. . .(Morgan et al., 1976, p. 157).

Demonstrations have been used effectively to teach adults in technical schools, in the adult basic education classroom, and in the military. In addition, this technique can be found in community education classes ranging from auto mechanics and woodworking to ceramics and belly dancing. In fact, demonstrations occupy a favored place among the techniques used in adult education (Morgan et al., 1976).

Gale (1954) found the demonstration superior to the illustrated lecture in teaching performance skills when simple training devices were used. Moeckel (1961) determined that conducting demonstration pilots, including the analyzing of soil tests, yielded high instructional and motivational value during the instruction of young farmers. This finding is reinforced by the study of Cunningham and Simeral (1977), who analyzed the effectiveness of demonstrations in changing farmers' attitudes. However, Statler and Juhl (1970) felt that the best use of this technique was found where a farm enterprise was completely operated by a group of adult students. The students not only "learned by doing," but also demonstrated their learning by managing the entire enterprise through practical decision-making. All in all, as indicated by Morgan et al. (1976), demonstrations are effective because they attract and hold attention, present subject matter in a way that can be understood easily, are able to "convince" doubters that something can be accomplished, and, in general, are objective and concrete in nature. However, the same authors indicate that the reader should be aware of the following limitations of demonstrations:

1. Considerable skill is required for a good demonstration.
2. People sometimes are inclined to use it when other techniques would be more suitable.
3. Some result demonstrations may require considerable time and be somewhat expensive.
4. A great amount of preparation may be needed.

EXHIBIT

"An exhibit is a collection of related materials put on display to aid learning" (Bergevin et al., 1963, p. 212). The exhibit can be especially effective in educating large groups of people in such settings as conferences, conventions, workshops and fairs. According to Morgan et al. (1976, p. 206), research indicates that exhibits must get their message across quickly because people will not take much time to look (the average "viewing time" is not much more than one minute). A UNESCO study (1970) emphasizes the importance of the exhibit for fundamental education programs in museums. The study suggests that the scope of materials for exhibition is nearly inexhaustible, and that studies of selected exhibitions have confirmed the great value and importance of exhibits in reaching a wide variety of audiences for educational purposes.

Two advantages in using exhibits for educational purposes are that they can be viewed by large numbers of people in a short time, and that the same materials can be used numerous times in various locations to convey the same message. However, exhibits require extensive planning and organization and they can be expensive. The exhibitor does not always have control of the space provided and may find that the exhibit space is inadequate. Perhaps the space is too small or away from the flow of traffic or is not equipped with electrical outlets, adequate lighting, or other such requirements.

FIELD TRIP (OR TOUR)

Bergevin et al. (1963) describes the field trip as "a carefully planned educational tour in which a group visits a place of study for first-hand observation and study" (p. 74). When the object of study cannot be brought to the learning group, this technique is used to illustrate the results of practice, or to stimulate interest and concern about a problem situation. For example, participants in teacher training institutes have been sent on tours through ghetto areas. Evaluation data, acquired primarily by testing and follow-up interviews, reveal that it is possible, at least in the short run, to effect a positive change in the attitudes of ABE teachers toward their students (*Urban Adult Basic*, 1972).

Field trips have also been used to enable low-income mothers to understand the commercial application (a clothing factory) of the steps they were taught in a class in making their own clothes (Davidson, 1976). In addition, trips to shops to select materials for making their own garments enabled these mothers to learn about different qualities and prices of various materials. It is possible

that a field trip may be an adult basic education student's first opportunity to get out of the local neighborhood. If this is the case, then the field trip is of particular importance. In a manpower program, Ainslie (1971) found that trainees acquired a better understanding of the overall function of the organization through a field trip to various components of the system.

Various authors warn that the field trip must be carefully planned and organized and related to the concepts to be learned. The crucial elements of an effective field trip appear to be timing, arrangements, transportation, communication, and cooperation among the parties involved.

FORUM

Encouraging or promoting audience participation is the purpose of the forum technique. This technique should be used when the topics and goals point toward accomplishing one of the following (Bergevin et al., 1963, p. 74):

1. Clarifying or exploring issues raised or information presented.

2. Enabling the audience to contribute ideas and opinions.

3. Conducting a more thorough discussion than a question and answer period permits.

4. Permitting resource persons to speak to identified needs and interests.

5. Identifying needs and interests to be met in the future.

Rankin, Lassiter, and Noel (1973) report on the use of the forum in an attempt to bridge the gap between campus and community. A rather surprising average attendance of 350 persons who were representative of the population in terms of age, ethnicity, and income level prompted the authors to conclude that the forum can be a successful way to bring a campus to a community and serve as a stimulus for self-study on important matters of common concern.

Other uses of the forum include the following (Oliver, 1975, p. 264):

1. Toward the conclusion of continuing education classes, the forum technique can be used to evaluate the learning activities or to identify the interests of students for future classes.

2. The forum can be an integral part of the community development process. It is a way of "getting to the people" in the community and securing their help in identifying problems and opportunities. Community-wide forums, properly planned and implemented, are useful in involving residents in the community in the decision-making process.

3. One of the best examples of the forum was the "American Issues Forum" which, during the Bicentennial, obtained mass public participation in discussions about a variety of topics of great importance to citizens in all parts of the country. Articulated by Walter Cronkite, this forum enabled Americans to "understand who we are before we look at who we should be."

Often, the forum is used in combination with other techniques, including the panel, lecture, or symposium. The important aspect to remember is that the audience participates and is not restricted only to asking questions.

GROUP DISCUSSION

"Group discussion is purposeful conversation and deliberation about a topic of mutual interest among six to twenty participants under the guidance of a trained participant called a leader" (Bergevin et al., 1963, p. 95). Morgan et al. (1976) advocate that discussion provides for participation, makes participants more tolerant and broad-minded, encourages good listening, and provides a cooperative means of bringing together facts and opinions. Olmstead (1970), in his review, found that group discussion had been used to induce change in prejudices toward others, solve community problems, and raise industrial productivity.

The discussion technique has been effective in reorienting attitudes of the aged (Fleming, 1973) and in changing opinions of participants in a manpower program with regard to the value of the discussion technique (Ainslie, 1971). However, in experimenting with the group discussion process, Willsey (1973) discovered that the higher the level of training, the more likely a group will be to obtain a significant gain in knowledge through group discussion.

In comparing the discussion technique with lecturing, Thompson and Tom (1957) and Stovall (1956) determined that, although no differences are often found between the two when tests are given at the end of a course, information learned by group discussion is better retained up to six months after the course is finished. In addition, when participants appear to be anxious about grades, the lecture technique is

usually preferred to group discussion. However, this preference is not apparent when grades are not determined by examinations.

It is often believed that when small group decisions are properly conducted, the discussion is effective in inducing behavioral change. But few research studies substantiate this hypothesis. Perhaps Olmstead (1970) identified the problem in stating that the lack of programmed research about group discussion can be attributed to the complexity of human behavior, the difficulty of controlling variables, lack of adequate measures, and the difficulty of dealing with real-life situations.

One of the greatest problems in the group discussion technique is finding a leader who has a knowledge of the group process, that is, participation patterns, and the communication network (Dutton and Seaman, 1972). In addition, the leader must be aware of the types of obstacles which usually prevent progress in group discussion, namely, apathy, non-participation, hostility, hidden agendas, monopolizers, and lack of adequate feedback (Stanford and Roark, 1974). In addition, research by Bouchard (1969); Campbell (1968); and Taylor et al. (1958), indicated that too much interaction within the group actually inhibits creative thinking.

INDEPENDENT STUDY

In independent study, the individual takes the initiative--with or without the help of others--in diagnosing his or her educational needs, identifying resources for learning, selecting appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975).

Although independent study activities have been used for a long time, only in recent years has this topic been considered valuable for discussion among adult educators. One of the earlier studies of independent, or self, study, was that by Tough (1967), who attempted to determine what teaching tasks are performed by self-teachers, who helps them, and what difficulties arise. His results indicated that, indeed, adults can teach themselves effectively. In support of this idea, Dobbs (1971) advocates that modern independent study, with all the innovative aids and resources for learning available has far greater appeal than the sterile, drab approach of textbooks often found in outmoded courses of study. According to Dobbs, the attractions of independent study are the opportunities to learn at an individual rate and to learn while working. Knowles (1975) has not only supported this concept, but has published a book in which he illustrates

how to establish a self-study program with adult students on either a credit or noncredit basis.

On the other hand, Dressel and Thompson (1973) state that an analysis of independent study programs, funded by the Ford Foundation during the Sixties, indicates that such programs, for the most part, were unsuccessful, primarily in terms of their poor completion rates. The Foundation's research study pointed out that independent study does not always foster self-direction and responsibility and concluded that there are no easy solutions to increase its effectiveness. Kleis (1971), in reporting on Project *ENABLE*, found that the use of a study guide with an independent learning packet did not improve learning significantly, that is, their use did not lead to higher scores on a criterion posttest. Thus, he suggests that adult learners may not be capable of guiding their own learning, at least with material of comparable difficulty and familiarity.

One of the best and most obvious resources for independent study is the library. The role of the library in independent study is emphasized in the reports by Mavor (1976) and Smith (1976), who point out that the library is not only useful in these learning endeavors, but also can actually foster independent study through its many resources and facilities, which may not be available to most adults anywhere else.

INDIVIDUALIZED INSTRUCTION

Individualizing, or personalizing, instruction, focuses the instructional process on individual skills, abilities, interests, goals, and rate of learning (Dunn and Dunn, 1972). The goals of this technique, proposed by Bechtol (1973, p. 10), are as follows:

1. Translate skills and content into behavioral objectives so that a diagnostic-prescription approach can be used.

2. Improve the self-concept of each student.

3. Help each student develop skills to be a lifelong, independent learner.

4. Provide relevant content (curriculum).

According to Lewis (1971), individualized learning provides for differences in entering levels of ability, in rate-of-learning ability, and even in differences in the learning goals themselves.

This idea is supported by Snyder (1972), who states that the heart of individualizing instruction is providing learning activities specifically tailored to the needs, interests, and abilities of adults. Snyder refers to the ILA Project in Philadelphia, in which all necessary skills in mathematics and communication for adult basic education students are taught through specially designed, individualized learning packets. He also attributes the rapid growth of adult learning centers to the use of the individualized instruction technique.

Weinhold (1972) cites the effective use of individualized instruction by adult students who taught other adults in a community action program sponsored by the Office of Economic Opportunity. In various arts, crafts, and other skill classes, students enrolled with varying levels of ability. Individualization of instruction enabled all students to progress at their own pace. McKee (1971) discusses an individually prescribed instruction program which was used with incarcerated adult offenders and freshman nursing students to see if contingency management procedures affected the rate of learning. Although contingency contacts and backup reinforcers were used to achieve optimum motivation, intercorrelations between learning rate and educational achievement of the two separate groups were not significant.

In comparing an individualized instruction program to a traditional classroom instructional program for GED students, Rogers (1973) found that students performed equally well, but fewer hours were required of those students in the individualized program. Although there may be some concern about the possible expense of developing materials for an individualized instructional program, Duane's (1971) investigation showed that elaborate programs are no more correlated with student achievement than are simpler, less expensive individualized programs.

LECTURE

The lecture is a well-prepared oral presentation of a subject by a qualified person (Bergevin et al., 1963). Much of the writing, particularly in recent years, about the lecture technique, has been rather negative. For example:

> In America, we have resorted to the lecture entirely too much. . .Irresponsible speakers often take advantage of this fact and use the meeting for their own vested interests, not hesitating to distort facts. Since there is no audience participation, the listeners need not listen, need not remain alert, or even awake. . .(Morgan et al., 1976, p. 79).

However, a review of the research does not support the theory (or assumption) that the lecture is not a good technique to use. Much of the research has compared the lecture with the group discussion technique. In a comparison of three instructional techniques, Palmer and Verner (1965) stated that their study supported earlier research in that the lecture technique was most effective for immediate recall. However, they found that group discussion may have been best for delayed recall. Palmer and Verner also determined that all of the participants in their study preferred *some* lecture, but also wanted the opportunity to participate.

Research by Carlson (1973) found no significant differences between the lecture and the guided discussion technique. This finding was supported by Sulkin's study (1967), in which the lecture was shown to be as effective as discussion groups whether participants were low-to-high extroverted or low-to-high neurotic. Kitchen (1970), in studying influences on adult learning, discovered that when given a choice, more students preferred a lecture-discussion combination than all other techniques combined. From his study, Kitchen concluded that teacher style seemed more important to most adult students than teaching techniques.

Although group size is thought to be influential in the effectiveness of lectures, research does not support this contention. Studies by Churchill and John (1958) and de Cecco (1964) indicated that although participants in large groups usually express themselves as less satisfied when hearing a lecture, they do equally well as those in small groups on evaluation measures used to determine retention or achievement.

McLeish (1976) in reviewing research about the lecture technique, discovered that, in an economic comparison of various techniques, lectures were only slightly inferior to group discussion in knowledge acquired. However, because lectures were considerably less time consuming for both faculty and students, the efficiency for this method was the highest of any technique.

At the end of his extensive review of the literature, McLeish (1976) concluded that the lasting effect of the lecture depends a lot on the personality of the lecturer. This is supported by Ryan (1968) who states, "The effectiveness of the lecture in comparison to other methods is a function of the lecturer, his or her objectives, and the type of student being taught" (pp. 270-76).

Morgan et al. (1976) concluded that the lecture technique can be a worthwhile activity because it can facilitate getting a message across to an audience of most any size. Rogers (1973) indicated

that an analysis of the most popular lecture topics can also be a key to the needs, wants, and interests of the public. Adult educators could use the results of such an analysis as a basis for program planning.

MICROTEACHING

One of the newer teching techniques that has become popular, particularly in teacher-training programs, is microteaching. This technique usually consists of scaled-down lessons of five to ten minutes in length, in which the teaching focuses on a particular skill--for example, eye contact, questioning strategies, and so forth (Gregory, 1972). The main reason for the increased use of microteaching is its value in evaluating teacher effectiveness. Instant playback for critique and evaluation is the attraction that makes this technique so uniquely successful as a teaching tool (*Second Treasury*, 1970). One of the major strengths of microteaching is its versatility as a teaching technique. For example, in an effort to sensitize adult basic education teachers to linguistic factors as well as social conditions that make up their teaching environments, Bartley (1972) found microteaching to be the most effective technique. Taylor and Johns (1973) also discovered that microteaching was useful in training adult basic education teachers, especially in behavioral attending skills. Most important, the desired change was still effective in a follow-up investigation two months after the training.

Fead (1975) reported on the effectiveness of microteaching activities for training civil engineers, both in graduate courses and noncredit, in-service training in specialized topics. The ability to use this technique in industrial plants, engineering offices, and similar locations has fostered its increased use in business and industry. The training of service personnel in consumer relations has been another successful use of microteaching ("Video Tape Helps," 1975). Reactions from clients and users of programs have been positive and enthusiastic, particularly since the tapes can be replayed for more in-depth comprehension and understanding.

In comparing the use of videotapes with films for training purposes, Phillips (1971) determined that video tapes are less costly to develop and handle. However, he cautions that care must be taken to insure that playback units in the field use the same size tape as those which are used by the camera. Films are more easily handled and better suited for short action sequences at several locations. However, the instant replay is a significant plus, according to Phillips.

NEWSLETTERS

A newsletter is a form of written communication with a definite message for the readers. The message must be accurate and complete, but not too long.

> It is essential that the message be as personal as possible, that it be brief and sufficiently attractive. . .Direct statements should characterize the style with some play upon examples and anecdotes to make for clarity and stimulate interest (Morgan et al., 1976, p. 211).

A study in West Virginia found that opinion leaders read newsletters, but there was less evidence to suggest that newsletters influenced public opinion to any great extent ("Do Extension Newsletters," 1970). Burrichter (1968) determined that newsletter information was effective in raising scores on an attitude scale, but the change was not as significant as that produced by other techniques.

Newsletters cannot be useful unless mailing lists are kept current and accurate. And unless newsletters attract immediate attention, they likely will be discarded.

PANEL

The most popular contemporary technique for improving on the traditional single lecturer is the panel presentation, using a few speakers and a moderator (Miller, 1964). Hopefully, the panel members have been selected on the basis of their competency in the topic for discussion and for their ability to verbalize in front of an audience, usually present (unless the panel is being presented through the media). The discussion or conversation among the panel members is guided by a moderator who starts and sustains the conversation. The panel may be the technique to use for the following purposes (Bergevin et al., 1963, p. 117):

1. Identifying and clarifying problems or issues.
2. Bringing several points of view before the audience.
3. Stimulating an interest in a topic.
4. Clarifying the advantages and disadvantages of a course of action.
5. Making use of a wide range of informed opinion.

Morgan et al. (1976) cautions the reader that panels have frequently been badly misused when members have digressed from the topic. In addition, the moderator must not only be knowledgeable about the topic, but also skillful in keeping the conversation moving and interesting to the audience.

One frequent use of panel discussions is during institutes and conferences where a number of similar or opposing views about an important topic can be discussed in front of participants. Occasionally, the discussion may be by telephone, via conference-call procedures, and a picture of the individual is shown on a screen as he or she participates in the discussion.

Panels are also used to obtain feelings about a new idea or product from various people. The discussion may center on the possible uses or effects of the proposed change, with each individual expressing his or her views and reacting to the ideas of other panel members. Radio stations, particularly in rural areas, have used this technique for new products or governmental policies which may affect farming operations.

PROGRAMMED INSTRUCTION

Some would argue that programmed instruction should not be included with teaching techniques. However, those who support this idea should consider its purpose and how it is used.

> The essential characteristic of programmed materials is that they arrange concepts or relationships which are to be learned in a series of short steps which require the learner to make appropriate responses (Miller, 1964, p. 205).

Programmed instruction can be used through self-instructional booklets, audiovisual materials, and by computer (Elliot, 1975).

Chown (1967) indicates that programmed instruction is an effective means of teaching older adults. Through her research, she found that the element of discovery enables older adults to learn materials as well as younger adults. McKee (1970) found evidence that programmed instruction can be used effectively in correctional institutions because of its self-pacing and individualized characteristic.

Much research has been conducted in comparing programmed instruction to other teaching techniques, particularly the lecture and lecture/discussion. Johnson (1967) determined that although no significant difference existed in the amount of learning attained between teaching by programmed booklets and by lecture/discussion, the material could be covered in half the time by programmed instruction. Brock (1970) concurs that programmed instruction requires less time than the lecture technique and adds that it also enables participants to better achieve the established learning objectives. The time element was

also emphasized by Longo (1969) in a study designed to obtain empirical data on the effectiveness of computerized programmed instruction as a teaching technique relative to the conventional method of lecture/discussion. Brock's findings support the conclusion that programmed instruction is not only as effective as conventional modes of instruction, but can reduce training time by a significant amount.

A research report, delivered in England, indicated that in comparing the effectiveness of "regular" teaching, including textbooks, with a self-pacing learning program, the self-pacing program took longer to complete, but resulted in a significantly higher gain in knowledge with a significantly lower error rate ("A Comparison,"..., 1966). Perhaps more significantly, Campeau (1971) discovered in her research review that of eight studies which sought to compare the instructional effectiveness of programmed materials to tradidional means of teaching,--lecture, lecture/discussion, and lecture/textbook--five found no significant differences which could be attributed to instructional method, whereas three reported significant differences in favor of programmed instruction. In addition, programmed instruction from machines or workbooks was found to be equally effective.

Before rushing into programmed instruction, an individual should realize that there is still much confusion and disagreement as to what actually constitutes a "program." Bunderson and Faust (1976) indicate that the claims regarding the merits of programmed instruction have generally been exaggerated. The authors also indicate that effective programmed instruction requires a systematic and empirical development process, which can be very time-consuming and costly unless the program is used constantly.

Perhaps the most important implication of programmed instruction is its influence on the role of the teacher, or facilitator. For example, Ross (1970) found the use of programmed instruction enabled the teacher to assume a benign and supportive role. One can but wonder how many teachers will be comfortable with that role without some preparatory training.

ROLE-PLAYING

According to Miller (1964) role-playing is perhaps the only technique that is "adult education's own." However, Morgan et al. (1976) indicated that children have role-played for centuries, while psychiatrists were the first to use it with adults. "Role playing is the spontaneous acting out of a situation or an incident by selected members of a group to portray a human relationship problem" (p. 132). Neff and Paterno (1972) contend that role-playing can be a valuable learning experience,

but, because of the complexity of human interactions, it requires an alert teacher to handle it. In other words, although most situations can be handled with honesty and sensitivity, an element of risk is involved. Tipple (1974) suggests that role-playing requires a lot of extensive preparation, but its attractiveness is that it can be tailor-made to most problem situations. He also suggests that one of the best ways to use role-playing to promote different understandings of "real" problems is to keep the same problem but change the roles each participant assumes.

Role-playing in adult education can be used for a number of purposes. In adult basic education, the technique can be effective in illustrating some of the problems which the students may face as they attempt new activities of a personal or vocational nature. Some of the roles which are often most meaningful are those of job interviewer, job interviewee, work supervisor, law enforcement officer, and high-pressure salesperson.

Adults who are learning the dynamics of group leadership should have the opportunity to play a number of roles in order to learn some of the problems they may encounter as leaders. This technique is effective in training volunteer group leaders for civic clubs, community groups, youth agencies, and church groups, and can be used for officer or leader training in educational organizations such as Parent-Teacher Associations, and extension service groups.

SELF-INSTRUCTIONAL MODULES

The need for some kind of self-paced, packaged learning has been commensurate with the recent growth of competency-based teacher education programs. Although some disagreement exists as to what a module really is, Hall and Jones (1976) define the learning module as a self-contained set of learning experiences designed to facilitate the learner's attainment of a stated set of learning objectives. As described by Robinson and Crittenden (1972), modules are portable, completely self-contained, and usable with small groups of learners as well as on an individual basis. Kapper (1968) adds that "although there are many types of learning packages, one characteristic that is common to all is that of self-pacing" (p. 260).

Because self-instructional modules are new, there is little evidence of their effectiveness. One of the early module development projects was at Weber State University; a recent comprehensive evaluation of the Weber State program showed that graduates who are now teachers and who had previously held a negative attitude toward *WILKITS* (modules)

changed their opinions and judged the modules to be an effective means of delivering instruction (Roth, 1977). In addition, those same graduates also judged themselves more capable of self-direction, than first-year teachers from other programs.

McKee and Seay (n.d., p. 9) found instructional modules to be effective for working with disadvantaged adults in a correctional education setting. This finding was supported by the research of Peters (1971), who concluded that the development of self-instructional teacher-training packages offers considerable promise for preservice and inservice education for adult basic education teachers. A major project at Texas A&M University features the development of a series of learning modules for use in staff development in ABE/GED programs. This idea is supported by Mills and Wood (1974), who advocate that learning packages may be the answer for adult learners with limited time to pursue education programs who need a more efficient and effective mode of learning.

McKee (1971) advocates the use of learning modules for training purposes (particularly in the Cooperative Extension Service) because of the flexibility for adapting materials to needs and interests of the participants. However, he cautions that preparation time for modules can be very demanding, the cost can be somewhat prohibitive if audio-visual materials are used, and not many individualized learning modules are suitable for management training situations.

SIMULATION

Simulation is a technique which involves participants in real-life situations and provides them with opportunities to practice solving problems through rational thought and the application of past learning experiences. Few present-day adult-education textbooks deal with simulation. However, the existing literature indicates that simulation is a successful, action-oriented technique. In addition, McKenzie (1974) notes that it is significant that the origin of early simulation games was related to a need for effective technology for adult education and training.

Simulations are frequently used in business and industrial training. Jaffee, Cohen, and Cherry (1972), in analyzing this technique for training employees, report that the primary consideration for using simulation games should be assurance of participation by all trainees. They also indicate that some simulations may even engender hostility and that silly games are usually distasteful for all adults. Harris (1972) states that "simulations are effective in training sales force

personnel by adding actuality and naturalism to training programs and clinics" (pp. 16-19). Relying on changes in on-the-job performance as the success criterion for whatever techniques are used in training. Harris finds simulations draw high marks in final evaluations. Schriesheim and Yancy (1975) conducted an experimental inquiry into the effectiveness of simulation games in the business community. They concluded that the most important support for the use of games comes from their high face validity and the almost uniformly positive evaluations obtained from participants. However, Schriesheim and Yancy were unable to draw any concrete conclusions regarding the effectiveness of simulations. They encourage trainers to gather data about learning, behavior change, and other outcomes associated with training techniques.

In other research, Griggs and Oppert (1974) found that simulations were effective in teaching consumer economics to women inmates. Spitze (1976) agrees that learning consumer economics is much easier when the knowledge is packaged appealingly in simulation experiences. Schneeberger (1968) proved that the use of a simulation exercise on the computer eliminated time-consuming computations and required less participant time than other techniques. Perhaps the most extensive simulation was described by Hunsaker, Larson, and Halverson (1974, pp. 162-164), in which a modified real-life experience is designed to show problems involved in initiating change. Called the "Sandcastle Exercise," the experiment lasted several days, and the results indicated it to be a "viable, multidimensional learning exercise" which has since been adopted by other practitioners in modified settings.

The adaptability of the simulation is evident through the variety of settings in which it is used. According to Bass and Vaughn (1966), the armed forces, as well as commercial airlines, have used "mock-ups," or simulation of airplane cockpits, for training pilots. In addition, a variety of simulations were utilized for training individuals in the space program.

In summary, the simulations have the following strengths (Dunn and Dunn, 1972, p. 31):

1. They are very real to those who work within them and frequently provide players with insights and understandings they had not previously had.

2. They provide rapid feedback about decisions made during realistic, lifelike circumstances.

However, the reader should also be aware of some of the weaknesses of this technique (Bass and Vaugn, 1972, p. 105):

1. Individuals sometimes tend to role-play instead of just being themselves.

2. Some participants cannot adjust to the telescoping (compressing of time and events) that occurs in the simulation exercise.

SKIT

The dramatic skit uses dialogue and action to interpret situations and events and usually involves a longer period of time than role-playing. As a teaching technique, the skit has the following advantages (Morgan et al., 1976, p. 141):

1. The audience is involved emotionally.

2. Ideas are more readily identified with viewers' experiences.

3. Viewers can get an insight into other people's feelings and attitudes.

4. It gets people involved.

5. It may be devised for almost any situation and does not need elaborate settings or equipment.

In teaching a group of undereducated adult women, Griggs and Oppert (1974), used a skit to contrast the purchasing practices of two shoppers. The increase in scores between the pretest and posttest indicated that the participants learned as a result of watching the skit.

The reader is cautioned that care should be taken in dealing with serious matters to avoid exaggeration and sensationalism in skits. Emotions evoked in skits should be only those with which most of the audience can feel comfortable, in general.

SYMPOSIUM

The symposium is a series of short presentations by two to five persons who are qualified to speak on related topics, or on various phases of the same topic. This technique is often used to present related aspects of a controversial topic, or closely related problems,

to an audience of any size (Bergevin et al., 1963). The symposium is usually a better method than a lecture because a variety of speakers are more likely to hold the interest and attention of the audience.

The symposium can be best used when a controversial topic is to be presented to an audience with different points of view. By selecting speakers who represent different sides of the issue, and restricting or even eliminating any audience reaction, the moderator can have a better chance to insure that all opinions will be presented in an orderly manner.

Another common use of the symposium is at political meetings, or rallys. Different candidates can be given equal amounts of time to present their platforms or views concerning the issues of the day. This can be accomplished as an actual presentation before an audience or can be taped and presented at a later time over radio or television.

Limitations of the symposium are the tendencies of the speakers to sometimes drift off the subject and the possibilities of repetition of information, divergences in opinions, and general confusion if the moderator is not competent in his role (Morgan, 1976).

TELELECTURE

The telelecture is presented through a telephone connected to an audio speaker. In some cases, a speaker may not be able to appear in person before a group but is able to use the telephone to reach the intended audience. Although the telelecture might be included as a part of the *lecture* technique, it has been presented separately because there are certain distinct differences between the two activities and much of the research about the telelecture has compared its effectiveness to the "face-to-face" lecture technique.

Grioer and Robinson (1969) found that telephone instruction for off-site industrial procurement personnel resulted in a level of learning comparable to that achieved by personnel learning by lecture "on-site." Blackwood and Trent (1968) also found no significant difference in the amount of learning attained between the lecture and telelecture techniques in teaching adults. Pellett (1969) studied the comparative effectiveness of telelecture and face-to-face lecture in training county extension agents and determined that they are equivalent techniques for communicating cognitive knowledge. Puzzouli and Fazzaro (1971) reached the same conclusion after a similar study with nursing education, but also emphasized that the telelecture produced a more favorable cost-per-student ratio.

Other research investigated the effectiveness of telelecture without conducting a comparative study. A study by Peterson (1970) indicated that certain types of individuals function better with articulated media and that certain skills can be learned which enable persons to increase their effectiveness under telephone instruction. Sparks (1976) determined that training members of the clergy to use conflict creatively can be achieved by the telelecture technique on a statewide basis by using small group settings and a highly competent faculty. Gluek (1971) concurs that the telelecture is an effective technique with multiple locations, but cautions that the *lecturer* must be able to adapt. With no chance to see the participants, it is sometimes difficult to know if anyone is really listening.

Major problems in using the telelecture technique include the following:

1. Technical problems; for example, interference, static, garbled messages (Kreitlow, 1974, p. 134, Gluek, 1971, p. 14).

2. Students who are unfamiliar with communicating by telephone in class (Kreitlow, 1974, p. 134).

3. Necessity of firm or structured reading assignments (Sparks, 1976, p. 204).

4. Problems of getting study materials to all sites where small groups or individuals receive the information (Puzzouli, 1970, p. 56).

5. Malfunction of equipment (Gluek, 1971, p. 14).

Most writers recommended using other techniques *with* the telelecture, if possible. However, all agreed that it is a significant technique for reaching vast and varied audiences.

TUTORIAL

Although somewhat related to independent study, the tutorial technique involves a much closer relationship between the facilitator, or teacher, and the student(s). This technique is appealing because most programs in adult education are designed for breadth rather than depth, and once a person becomes interested in pursuing a topic beyond what is covered in the class setting, there are few opportunities available for systematic study under the close guidance of a qualified tutor (Miller, 1964).

The tutorial approach seems to be most effective in adult basic education. For example, in New York a pilot tutorial program was implemented to improve communication between non-English speaking persons and native-born citizens. All adult participants (students) expressed positive effects from this technique, for example, inspiration for further study and increased confidence (Grabowski, 1976). The study advises that tutors should speak the language of the "tutee," must be used on a one-to-one basis only, and must be assigned to students on the basis of compatibility.

The effectiveness of a tutorial program was supported by a study at Berea College (*Student Taught Adult*, 1972), where a number of college students tutored as many as three adult basic education students in their homes. This proved to be an effective technique as shown by grade-level score increases and evaluations by the students. Hand and Puder (1967) indicate that tutorial is one of the most successful techniques as demonstrated by the success of the "Laubach Method," where a one-to-one relationship between teacher and learner is emphasized.

Miller (1967) proposes that the tutorial technique is the answer when a class is cancelled because too few students enroll. Those who do register could work with the instructor independently, conferring with him or her and with each other as often as necessary. He cautions, however, that the expense of this technique may be prohibitive to many adult students.

INFLUENCE OF MEDIA

Indications are that media will have an increased influence on learning in the future. In this paper, media are discussed in terms of two categories: multimedia and mass media.

MULTIMEDIA

Several studies have been conducted to evaluate the effectiveness of a multimedia approach to teaching adults. Douglass (1969) found that the use of telewriting--the transmission of graphics and speech through special telephone circuits--can save time and money, but he indicates that its effectiveness depends heavily on user attitudes, teacher preparation, and adequate service and facilities. Brown et al. (1973) investigated the relationships between selected characteristics of 250 adult learners and their responses to multimedia instructional

programs, readings, audio tapes, and video tapes. They determined that variations in responses suggested that key *personal* characteristics are related to acceptance of and benefit from use of multimedia.

Robinson (1971) reported that a carefully designed multimedia instructional program was effective in changing adults' expressed opopinions about social and political issues. Kent and Dockrill (1972) found that a multimedia approach was significantly more effective in teaching reading and comprehension skills to subliterate adults than the traditional textbook approach. Thus, in general, an educational program using multimedia seemed to enhance learning, at least in a number of situations in which adults were the participants.

MASS MEDIA

Mass media are used to reach (or teach) a large audience, that is, hundreds, or even thousands. This approach is often used in underdeveloped countries (*The Use of Mass Media*, 1965; *Second Treasury*, 1970). Mass media as a teaching/learning technique also has been used in England (*What Is*, 1974) and Japan (*The Use of Modern Media*, 1972), as well as in the United States.

Recently, the focus on mass media has emphasized the uses of radio and television. Marchese (n.d.) discusses the feasibility of using cable television as an instructional medium for undereducated adults in the Appalachian region of the U.S. Campeau (1971) found that pocket radios have, in some instances, produced significant results in adult students' efforts to learn a foreign language, primarily because the radios made drill exercises more available. Eyster (1976) reports that educational television is an appropriate technique for teaching adults, particularly when the critical element of person-to-person contact is added in an open broadcast. He emphasizes that this contact is critical to the student's involvement, retention, perseverance, and achievement.

Perhaps the most comprehensive attempt to use mass media in adult education was "Project *RED*," conducted by the University of Wisconsin. This project was an innovative attempt to design and use mass media to serve undereducated adults in four counties in southern Wisconsin by penetrating the isolation often created by distance, poverty, long working hours, and previous negative educational experiences (*The RFD System*, 1972). The media system used television, bulletins, radio, a monthly almanac, a toll-free problem-solving telephone service, and

home visits. The project demonstrated that a mass media educational approach will generate a high participation rate once it is developed and delivered into the home (Frank, 1972). This idea is somewhat reinforced by the publication edited by Niemi (1971), in which many benefits of mass media in adult education are discussed by the various authors of the articles presented.

SYNTHESIS

The following ideas or observations have been fostered from a careful analysis of the data in the preceding section of this paper:

1. The paucity of "hard" research data on the subject of teaching techniques in adult education is somewhat frightening. As the reader may have noticed, little research was available on some of the techniques included in this review. In addition, some of the data labeled "research" did not attempt to assess the effectiveness of the technique(s) discussed. Many of the data consist of surveys, preference studies, attitudinal measures, and informal evaluations by participants. I suggest that teacher trainers, professors, and others engaged in staff development activities in adult education refrain from emphasizing the "effectiveness" of certain teaching techniques if that effectiveness is not supported by research findings. Preferences for and attitudes toward selected techniques can be stressed, where appropriate, but we, as professional educators, should not assume that these kinds of phenomena are necessarily correlated with effectiveness.

2. When relevant research studies were found, the quality of the experimental designs were difficult to evaluate. Conclusions may have been biased by uncontrolled variables in the studies reported. If the control factors are not indicated, how can the reader be certain they exist? In addition, according to Campeau (1971), it is not always possible to draw conclusions as to whether statistically significant gains, when reported, are *educationally* significant as well. Again, in reviewing research reports, the adult educator should look beyond the surface and, if possible, evaluate the study on the basis of its design, procedures, data analysis, and basis for conclusions drawn. More important, when *reporting* research, the individual should provide sufficient information about his or her research. Then readers can draw their own conclusions about the quality of the research study. In addition, data are needed about the other effects of teaching. For example, do certain

techniques motivate adults to participate further in learning activities? Are additudinal changes influenced more by the use of selected techniques alone, or in combination with others? Which teaching techniques are more effective in convincing adults to actually *change* their behaviors, that is, adopt a new behavior, terminate a former activity?

3. No single technique, when compared to others, is more effective in adult learning situations. Sometimes, it appears that one *is* more effective, but further research usually contradicts previous findings. Programmed instruction does show some promise of being more effective than other techniques under certain conditions, but results are not always conclusive. The lecture has been shown to be more effective than group discussion for immediate or short-term recall, but group discussion is more effective for recall after several months. This conclusion is supported by Hand and Puder (1967) who, after an extensive review of approaches to teaching adults, concluded that no single approach (or technique) was universally more effective than the others included in their investigation. They added that "the choice would seem to be a compromise of two or three methods, selected as experience and changing circumstances may dictate" (pp. 3-4). Therefore, a variety of techniques should be used instead of a single teaching technique, if possible. This does not mean that something different should be used each time, but simply implies that changing the pace or even the style of teaching can break the constancy, or "monotony," of the learning situation.

4. In the future, packaged (individualized) learning, in one form or another, probably will be more frequently used in adult education. Although packaged learning has not been shown to be *more* effective than other techniques, research indicates it is equally effective *but requires much less time*. Too, in our highly mobile population as described by Toffler (1970), the availability of learning "packages" located around the country could be a definite asset for those adults whose learning is interrupted by a geographic move. Administrators, teacher trainers, and teachers, themselves, should become knowledgeable about some form, or forms, of packaged learning. Training in this area will soon become a "must" for the individual who aspires to be successful in teaching adults.

5. The case study, although not always mentioned in the literature as a teaching technique, seems to have more adaptability and usefulness in stimulating learning than most other techniques.

The case study should be used more often in adult education, particularly in problem-solving and related types of activities. This technique requires careful planning on the part of the facilitator and, if handled properly, may even force adult educators to spend more time in planning new and more effective learning activities instead of merely repeating the same procedures.

6. The effectiveness of self-study activities, especially correspondence study and programmed learning, is greatly enhanced by the use of media, particularly audio tapes and visuals. Apparently, the lack of contact with instructors can be overcome to some degree by the use of media. However, greater emphasis must be put on the importance of completing the *first* lesson when learning is being accomplished by correspondence study. Total course completion, in many cases, is dependent upon completing the initial lesson. Therefore, a knowledge of how to use media is very important in working with self-study techniques in adult education. Multimedia activities should be used whenever possible in order to enhance the ability to provide an effective educational program. Learning-center directors often have a better opportunity to improve their programs because of the media available in the center, but teachers in the "classroom" situation should also use audiovisual materials whenever possible as a part of self-study program.

7. The increased use of telelecture should be considered by adult educators. This technique has been shown to be as effective as face-to-face lecturing, and the cost/effectiveness advantages, particularly with the likelihood of increased travel costs, should make this technique more attractive to program directors. Administrators should investigate the feasibility of using the telelecture technique more often. Not only would program costs possibly decrease, but the time required may also be less, enabling the program staff, in turn, to spend more time planning and implementing effective adult education programs.

8. Because they are high in face validity and popularity with adult students, simulations have been shown to be effective in adult education. However, they are not *more* effective than other techniques.

9. Because of its adaptability to a variety of settings, topics, and purposes, microteaching promises to be an effective technique for training adults. However, its use will greatly depend on development of the needed hardware and the training of competent users.

RESEARCH PRIORITIES FOR THE FUTURE

The literature cited in this report raises the question of research in the area of teaching techniques. "Conventional wisdoms" and "common-sense correlates" are not adequate for selecting and using a particular teaching technique. A research base is needed for identifying, selecting, and applying adult education teaching techniques.

More specifically, the following recommendations should be considered:

1. A concentrated effort should be made by adult educators and others to conduct valid research studies to determine the relative effectiveness of various techniques for teaching adults. Certainly, obstacles do exist and all factors involved may not be under the control of the investigator, particularly such items as attendance, participation, adequate facilities, and research costs. However, unless research data are forthcoming, there will be, at most, only a weak basis for recommending certain teaching techniques in learning situations.

2. "Effectiveness" should be determined by more criteria than simply knowledge gained as indicated by immediate recall on a posttest. In addition to increased knowledge or skill, measures of performance, or competencies, should be taken. Could the participants actually demonstrate increased ability to perform the tasks, or objectives? Did one technique motivate a student to want to learn more?

3. More investigations should compare the "standard" techniques, that is, lecture, group discussion, panel, and demonstration, with the newer techniques, for example, simulation, programmed instruction, and microteaching. Again, in addition to how much learning is achieved, factors such as amount of time required, cost effectiveness, and psychological impact on the participants should be included in the comparative studies.

4. Research should be conducted concerning the influence of "learning styles" on the effectiveness of teaching techniques. Although learning styles can be conceptualized from several points of view, I encourage those based on the concept of "sensory-intake," as advocated by French (1975). Within the sensory-intake framework, personal learning styles include:*

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STYLE	CHARACTERISTIC
PRINT-ORIENTED	Dependence on reading and writing
AURAL	A listener; doesn't say much
ORAL (INTERACTIVE)	A talker; learns through discussion
VISUAL	Must have many visual stimuli and visual representations
TACTILE	Has to touch everything and everyone
MOTOR	Has to move about while learning
OLFACTORS	Learns through smell and taste

Another view is offered by those who perceive learning styles as follows:

STYLE	CHARACTERISTIC
SEQUENTIAL	Must perceive orderly relationships (B follows A)
LOGICAL	Uses processes of human reasoning to research conclusions
INTUITIVE	Perceives truths and facts directly, without benefit of reasoning
SPONTANEOUS	Relies on impulse
OPEN	Uses combinations of the above or different ones of the above at different times

Going one step further, French (1975) states that *both* of these frameworks may, in fact, be valid and that both may be operating simultaneously. Therefore, the investigator may have to consider the following framework, or matrix, (see p. 36) in the study. A desirable outcome of such research may be the ability to match facilitators and students on the basis of teaching styles and learning styles. In addition, various techniques could hopefully be identified and used on the basis of matching the students' learning styles.

5. An effective system of disseminating research results should be developed and used by both researchers and users. Because of its availability and relatively low-cost, the ERIC system is recommended. However, cooperation between ERIC, professional journals, clearinghouses, and research sections of the national associations of the adult education profession (AEA, NAPCAE) are essential to needed dissemination.

	SEQUENTIAL	LOGICAL	INTUITIVE	SPONTANEOUS	OPEN
Aural					
Oral (Interactive)					
Visual					
Tactile					
Motor					
Olfactory					
Print-Oriented					

This report reviews and synthesizes research related to teaching techniques in adult education. It is not intended to be totally negative regarding availability of research on these techniques. In the next five to ten years, needed research will likely be forthcoming, and the research to be reviewed will be greater in terms of both quantity and quality.

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